

**ABSTRACT**

The invention relates to a membrane module for the separation of hydrogen and a method for the production thereof. The membrane module is configured for parallel flows and contains a plurality of planar membrane cells which respectively comprise two hydrogen-selective planar membranes (4) which are respectively surrounded by a flat membrane frame (16), an air-permeable distancing layer which is arranged between the membranes for removal of the permeate gas and a supply frame (18) surrounding a supply area for the reformat gas (10), whereby all membrane frames and supply frames have the same outer dimensions and form a stack with planar side surfaces. According to the invention, the two membrane frames (16) of each membrane cell (2) have protruding edges directed towards each other, enabling them to enter into contact with each other, the only exception being at least one opening towards a side surface of the stack. The supply frame (18) is embodied in such a way that, it is disposed, with the exception of the openings (32,34) towards the side surfaces of the stack, in a closely adjacent manner to the edges of the membrane frame (16) of two neighbouring membrane cells (2). The outsides of all membrane frames (16) and supply frames (18), with the exception of the openings (24, 32, 34), are welded or soldered to each other in a gas-tight manner.